New Frontiers in Cosmetic Medicine

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Disclosures

• Research Grants: Cutera, BTL, Lumenis Sienna, Allergan, Galderma, Pfizer

• Consultant: Merz, Allergan, Galderma, Neauvia, Sensus

New Frontiers in Cosmetic Medicine

• Body Contouring
• Excimer Laser – New Concepts
• Topical Products – Skin Care
• Oral Agents for Hair
New Frontiers in Cosmetic Medicine

- Body Countouring

Non-Invasive Body Shaping Technologies

- Technologies based on controlled cooling or heating (localized tissue hyper/hypothermia)
- Primarily address subcutaneous fat

HIFEM Technology

High-Intensity Focused Electromagnetic Energy

- Rapidly changing magnetic fields induce currents in the tissue.
- This leads to depolarization of motor neurons in the treated area → muscle contraction
- The focused energy induces 20,000 muscle contractions in 30 min
- This results in so-called supramaximal contractions that can never be achieved through normal voluntary muscle action
HIFEM brings additional muscle component to the already established fat reduction market.

Approximate body composition:
- SKIN: ~7%
- FAT: 25%
- MUSCLE: ~35%

Limitation of thermal technologies:
- Can’t treat muscle.
- Wide range of adverse events – erythema, burns, swelling, pain, etc.
- Current devices exclude many potential patients
  - Patients with less fat
  - Patients lacking muscle tone
- Mommy makeover is hot, but thermal technologies don’t address muscle laxity or diastasis recti
- Current devices provide no alternative to injectable or surgical buttock procedures
New Frontiers in Cosmetic Medicine

• Excimer Laser – New Concepts

FDA Cleared Indications:
• Vitiligo
• Psoriasis
• Atopic Dermatitis
• Leukoderma

VITILIGO
• Localized areas, especially face including periorbital, neck, and torso

PSORIASIS
• Localized areas after topical fail (≤ 10% BSA)
• In combination with NB-UVB/PUVA, injections/biologics, and methotrexate for recalcitrant plaques
• Difficult to treat areas: Scalp, Hands, Feet, Intertriginous Lesions

Excimer Laser
Mechanisms of Action
Hyper-Proliferative, Inflammatory, and Hypo-pigmented Disorders

Mechanisms
• T-Cell Apoptosis: Destruction of localized T-cells that mediate diseases including psoriasis and vitiligo
• Anti-Inflammatory: Suppression of inflammation for diseases such as atopic dermatitis
• Melanocyte Stimulation: Targeted repigmentation of vitiligo and leukoderma

Pharos for Vitiligo
• Study Results: Of 221 patches treated, 50.6% showed 75% or greater pigmentation, 25.5% achieved 100%, and 64.3% showed at least 50% or more
• Induces rapid and profound repigmentation
• Shown to be more effective than NB UVB in head-to-head comparisons
• Effective repigmentation in 20 or fewer sessions
• Ideal for the face including peri-orbital areas
• No darkening of peripheral healthy tissue, skin atrophy, or complications of PUVA

Pharos for Psoriasis
• Study Results: 84% had 75% or better improvement with 10 or fewer treatments, and 50% had greater than 90% improvement
• Effective clearing in about 1/3rd the number of treatments vs. conventional phototherapy
• Average patient needs about 12-14 treatments vs. 36 – 40 with NB UVB lamps
• Proven on stubborn recalcitrant plaques
• Ideal for Scalp, Itches, Flex, Intertrigenous Lesions
• For all ages and skin types, even pediatric
• Long remissions, usually 4 months or more
Published Study: “308-nm Excimer laser treatment of palmoplantar psoriasis,” Goldberg, David, etc al. April 2011

- Palmoplantar is difficult to treat and often treatment-resistant to topicals, injections, and NB UVB
- In 2009 study of 114 patients with hand and sole psoriasis, less than 1/3rd showed improvement with topicals
- Purpose of study was to evaluate the safety and efficacy of the PHAROS 308 nm excimer laser for treatment hand and foot psoriasis
- Method: 10 male/female subjects with mild to severe psoriasis of the palms and soles, ages 18-75
  - All subjects discontinued all other treatments for 4 weeks prior to study
  - Up to 16 Pharos treatments, given twice weekly, were given over 3 months. Clearance evaluated by PASI score

**Results:**
- A mean number of 11 treatments (from 7 to 14) was provided each subject
- By the 5th treatment, all subjects showed improvement in the PASI score
- At the end of treatments, all subjects showed improvement between 50% to 100% as evidenced by decreased scale, decreased erythema, and flattened plaques
- 100% of subjects had 3 month or longer remission
- 40% of subjects had remission 6 months or longer

**Other UVB Responsive Disorders**

Localized auto-immune, T-cell mediated, UVB responsive disorders including:
- Atopic Dermatitis / Eczema including contact, allergic, and seborrheic
- Alopecia Areata
- Lichen Planus including Oral
Localized auto-immune, T-cell mediated, UVB responsive disorders including:

- Lichenification and Lichen Simplex Chronicus
- Cutaneous T-cell lymphoma, especially Mycosis Fungoides

These are HYPER-PROLIFERATIVE, INFLAMMATORY, OR HYPO-PIGMENTARY DISORDERS which is why they respond to the 308-nm excimer laser phototherapy

New Frontiers in Cosmetic Medicine

- Topical Products-Skin Care

  - Retinols
  - Antioxidants
New Frontiers in Cosmetic Medicine

• Oral Agents for Hair

HAIR LOSS: THE SCOPE OF THE PROBLEM

WOMEN
- Women actually make up 40% of American hair loss sufferers
- 50% of American women will suffer hair loss at some point in life
- 40% have visible hair loss by age 40
- Now women are showing signs of significant thinning at earlier ages – 20s, 30s.

MEN
- In both men and women, 50% of the follicles have to be affected before hair loss is noticeable with the naked eye.
- 50% of American men are experiencing hair loss before age 50
- 25% experience hair loss at younger ages, before 30
- By age 55, 40% experience some degree of hair loss.
- After age 50, percentage of men experiencing significant thinning goes up to 65% over the next few decades.

HAIR LOSS IS ABOUT SO MUCH MORE THAN JUST LOSING ONE’S HAIR

- 66% suffering from hair loss think about their hair loss
- 89% said hair loss makes them depressed
- 55% feel judged
- 86% envy thick hair
- 39% say hair loss affects their social life
Multitargeting: A new approach to addressing hair loss through nutraceutical mono and adjunct therapies

Research supports a multifactorial pathophysiology of hair loss

The pathophysiology of hair loss is unequivocally multifactorial and exquisitely complex, involving a plethora of factors and signaling pathways. Hormones, the brain-hair axis, and the environment-hair axis influence the hair follicle, which is at war against its regulatory circuitry, and in the absence of strategies to counterbalance this attack, can ultimately override the hair follicle’s internal controls. The result is a deleterious self-sustained inflammatory cascade as the new status quo.  


"As our understanding of the microenvironment of the hair follicle deepens, it is becoming increasingly clear that targeting a single pathway in this complex system is not ideal."  

– Dr. Leon Kircik

A New View on Hair Loss

Multiple Triggers, Multifactorial Etiology, Inflammation

A widespread contributing trigger for hair loss and growing problem in both genders

Chronic Stress

A widespread contributing trigger for hair loss and growing problem in both genders

3 out of 4
Number of Americans who report experiencing at least one stress symptom in the last month

45% report feeling nervous or anxious
36% report feeling upset or irritable
35% report irritability or anger
34% report fatigue due to stress

*American Psychological Association

Disruption of other hormones: estrogen, progesterone, thyroid

TNFα/ Cytokines

Free Radicals

Catagen Inducing Factors

Collapse of Immune Privilege

Apoptosis

Follicle Regression

Stress Systemic Response:
Substance P Cortisol

Local Response:
Follicle Produced Cortisol

Mast Cell Degranulation
Connection to Hair Loss

Disruption to the microbiome – Dysbiosis results from:
- Poor diet
- Antibiotic use
- Environmental exposure to toxins
- Stress
- Other causes

Digestive compromise & hair health:
- Increased gut permeability – allows exposure of the hair follicle to antigens and immune damage
- System-wide increase in low-grade inflammation - rise of inflammatory mediators (cytokines) implicated in hair loss
- Poor nutrient assimilation – suppressed breakdown and absorption of nutrients needed for hair metabolism

A New View on Hair Loss

Multi-Targeting

Transformed Botanical Nutraceuticals

Menopause and Hair Loss

Genetic and non-genetic factors contribute to hair loss:
- Androgens, aging, stress, environmental factors, other hormones
- Androgens contribute more significantly for women during and after menopause
- Relative androgen excess
  - Estrogens and androgens decrease abruptly after menopause
  - Androgens usually decline gradually with age
- Insulin Resistance & Thyroid Disorder
- Heightened levels of inflammation & oxidative stress
- Decreased DNA transcription
- Reduced or reduced-function enzymes
- Less defense against pro-inflammatory mediators
Combination Therapy for In Office Hair Restoration Procedures

Integrating multitriggering modalities

Nutraceuticals for Hair Restoration

PRP - Platelet Rich Plasma for Hair Restoration